in the EL element 200.

When the current I_{dto} flowing in the EL layer 203 is small, the luminance of light emitted from the EL element 200 is also small. In other words, the short circuit in the defect portion causes the EL element to emit light of lower luminance upon application of a forward bias voltage than in the case where no short circuit takes place.

The results are the same even when the EL layer is a laminate of plural layers and the pin hole formed in the light emitting layer connects a hole injection layer or a hole transporting layer to an electron injection layer or an electron transporting layer. The portion where the hole injection layer or the hole transporting layer is connected to the electron injection layer or the electron transporting layer receives a reverse bias current flow similar to the defect portion where the electrodes short-circuit. Therefore, this portion can also be a cause of the EL element emitting light of low luminance. Hereinafter, every portion where two layers sandwiching a light emitting layer are connected to each other in a pin hole formed in the light emitting layer is generically called a defect portion.

In addition to lowering the luminance of light emitted from the EL element, the short circuit in the defect portion accelerates degradation of a part of the EL layer that surrounds the defect portion since there is always a current flow in the defect portion.

SUMMARY OF THE INVENTION

The present invention has been made in view of the above problems, and an object of the present invention is to present a method of repairing a defect portion.

The present inventors have thought that, even though an EL element has a defect portion, reduction of current flowing in an EL layer when a forward bias voltage

is applied can be avoided by increasing the resistance in the defect portion.

Thus devised is a method of increasing a resistance R_{SC} in the defect portion by applying a reverse bias voltage to the EL element to cause a reverse bias current I_{rev} to flow.

When the reverse bias current I_{rev} is caused to flow in the EL element, most part of it flows into the defect portion where the short circuit takes place instead of flowing into the EL layer. If a large current flows through the defect portion, the temperature in the defect portion is raised to cause some changes in the defect portion, including burnout of the defect portion, vaporization of the defect portion, and transform of the defect portion into an insulator due to oxidization or carbonization. As a result of the changes, the resistance R_{SC} is increased. In this specification, the defect portion whose resistance R_{SC} is increased by a reverse bias current flowing thereinto is called a transmuted portion.

With the resistance R_{SC} increased, the current flowing into the transmuted portion when a forward bias voltage is applied to the EL element is reduced whereas the current flowing into the EL layer is increased, thereby raising the luminance of emitted light.

Having high resistance R_{SC}, the transmuted portion hardly allows a current to flow therein in contrast to the defect portion where there is always a flow of current to accelerate degradation of a part of the EL layer that surrounds the defect portion. Therefore, degradation is not accelerated in a part of the EL layer that surrounds the transmuted portion.

The fabricating and/or repairing method of the present invention is applicable not only to an active matrix light emitting device but also to a passive matrix light emitting device. The structure of the present invention will be shown below.

According to the present invention, there is provided a method of fabricating and/or repairing a light emitting device by applying a first voltage and a second voltage to an EL element in order, characterized in that the first voltage and the second voltage are reverse bias voltages of different levels.

According to the present invention, there is provided a method of fabricating and/or repairing a light emitting device by gradually changing a voltage applied to an EL element from a first voltage to a second voltage, characterized in that the first voltage and the second voltage are reverse bias voltages of different levels.

According to the present invention, there is provided a method of fabricating and/or repairing a light emitting device having an EL element that includes an anode, an EL layer, and a cathode, the EL layer being in contact with the anode and the cathode being in contact with the EL layer, characterized in that a first voltage and a second voltage are applied in order between the anode and the cathode, and the first voltage and the second voltage are reverse bias voltages of different levels.

According to the present invention, there is provided a method of fabricating and/or repairing a light emitting device having an EL element that includes an anode, an EL layer, and a cathode, the EL layer being in contact with the anode and the cathode being in contact with the EL layer, characterized in that a voltage applied between the anode and the cathode is gradually changed from a first voltage to a second voltage, and the first voltage and the second voltage are reverse bias voltages of different levels.

According to the present invention, there is provided a method of fabricating and/or repairing a light emitting device having an EL element that includes an anode, an EL layer, and a cathode, the EL layer being in contact with the anode and the cathode being in contact with the EL layer, characterized in that a first voltage and a